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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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EXAMINER

ART UNIT

PAPER NUMBER

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/482,933

Applicant(s)

Northrup et al.

Examiner

Ardin Marschel

Group Art Unit

1631

Responsive to communication(s) filed on _____

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1035 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

- ☒ Claim(s) 81-87 and 93-106 is/are pending in the application.
- ~~☐ Claim(s) 1-80 and 88-92 have been canceled.~~ ~~☐ Claim(s) 1-80 and 88-92 have been canceled.~~ ~~☐ Claim(s) 1-80 and 88-92 have been canceled.~~
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 81, 82, 86, 87, and 93-106 is/are rejected.
- ☒ Claim(s) 83-85 is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s) _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

The art unit designated for this application has changed. Applicant(s) are hereby informed that future correspondence should be directed to Art Unit 1631.

The suspension of prosecution, mailed 10/13/99, is hereby withdrawn. Said withdrawal of suspension is hereby entered so that the below newly applied issues may be addressed.

As a first issue, the request for Interference, filed 10/5/98 (Cert. of Deposit on 9/30/98), is noted. Due to the greater than 3 month time period between the filing dates of the potentially interfering parties and due to an indication that the instant application would be the junior party, evidence complying with 37 CFR § 1.608(b) is required for such a request to be further considered. Applicants have acknowledged this in their last page 15 of said submission, filed 10/5/98.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The pending claims are directed to processes of manufacturing of an instrument on a wafer, devices, and methods of amplification whereas the title only cites a reactor.

Claims 93-106 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention.

In all of claims 93-106, either directly or via dependence from another claim, the limitation is present that chamber(s) and channel(s) connecting them are of dissimilar dimension. See, for example, claim 93, lines 14-15. Consideration of the instant specification and Figures reveals that this generic dissimilar dimension limitation lacks written wording as to written support. Consideration of the instant Figure 2, however, reveals that all of the chambers therein are shown with a larger dimension than all of the channels. Instant claim 93, for example, includes devices with channels which either have the same dimension as the chambers or larger dimensions than the chambers. No depiction has been found with a channel having a same dimension as a chamber nor where a channel is larger in dimension compared to any chamber. Thus, the limitation directed to "dissimilar dimension" comparing channels and chambers is broader than the instant disclosure regarding this comparison and therefore causes the above listed claims to contain NEW MATTER.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled

the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 81, 82, 87, and 93-106 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by Wilding et al. (P/N 5,498,392).

Wilding et al. disclose the preparation and use of microfabricated amplification devices for PCR usage as summarized in the abstract and throughout its specification. Figures 10-12 and the associated description in columns 7-15, especially disclose inlet ports, reaction chambers, PCR reagents, etc. These devices are primarily manufactured out of silicon as disclosed in column 3, lines 61-66. Electrical heaters of various types may be fabricated in the substrate as described in column 4, lines 29-44. A detection chamber of the reference may include a window for spectrophotometer reading as described in column 4, line 65, through column 5, line 4. These disclosures anticipate the above listed claims.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by

the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 81, 82, 86, 87, and 93-106 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wilding et al. (P/N 5,498,392), taken in view of Hafeman et al. (Science 240:1182[1988]).

This rejection is directed to claim embodiments corresponding to the semiconductor wafer limitation of instant claim 86.

Wilding et al. has been summarized above but lacks a semiconductor material description for its microfabricated device practice. In column 3, lines 61-66, Wilding et al. does, however, motivate and suggest micromachining methods as applicable for device fabrication.

Hafeman et al. in the abstract describes semiconductor devices (LAPS as Light-addressable Potentiometric Sensor devices)

as being utilized for a multiplicity of chemical events. Further, on page 1183, second column, and on enzyme reactions are suggested on such devices. A copy of Hafeman et al. is not included with this action because it was reprinted on pages 438-441 within a reference already cited by applicants given as Muller et al., Microsensors (1990).

Thus, it would have been obvious to someone of ordinary skill in the art at the time of the instant invention to utilize various microfabrication materials which may be of the silicon type or more generically semiconductor material for microsensor fabrication because Wilding et al. suggests and motivates micromachining or microfabrication of devices therein described and Hafeman et al. includes semiconductor materials in the art of microsensor manufacture in microdevices such as using enzyme assay based reactions.

Claims 83-85 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703) 308-4242 or (703) 305-3014.

Serial No. 08/482,933

- 7 -

Art Unit: 1631

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (703) 308-3894. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached on (703) 308-4028.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technical Center receptionist whose telephone number is (703) 308-0196.

September 28, 2000

Ardin H. Marschel
ARDIN H. MARSCHEL
PRIMARY EXAMINER